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Stockholm 1976-02-25

LANDSAT-2 experiment No. 28740. The Baltic Sea (2:nd report)

Collected truth-data are now under preparation and a first analysis in the 70 mm imagery has been performed. Figure 1, shows the scenes received up till now ( $\Sigma 60$ ) of which 29 are potentially useful to accomplish the objectives of the experiment. Of these 29 scenes some are of lower quality, probably processing defects, which will be reordered together with CCT-tape for a more detailed analysis in selected areas. Among the scenes classified as not useful within the Baltic Sea experiment, due to cloudiness or other perturbations in the atmosphere, there are also registrations over Sweden which will be used in a MSS-project, concerning vegetation analysis of terrestrial and aquatic ecosystems. This MSS-campaign was carried out during late June - early July in a cooperative research by Swedish and France Space Corporations, where unfortunately no Landsat registrations were performed in our test-area (pos. cent. long 17.45/lat. 58.55) during the passages of the Baltic 750701-750702.

A brief analysis of the useful scenes shows that the passages of the Baltic 750804-750809 (orbits: 2700, 2714, 2728 and 2770) when the predicted bluegreen-algal bloom appeared. Figure 2, can be used in an attempt to estimate the chlorophylls, carbon, nitrogen and phosphorus in the material.

The configurations shown by these algal-masses in the surface-water will probably make it possible to map circulation patterns of the surface water.

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A first analysis of the chlorophyll a, secchi disk readings and phytoplankton biomass of truth-measurements 750805 show a lower correlation of these parameters compared to measurements obtained during the MSS-experiment where higher concentrations of the parameters were found (fig. 3-5). Hopefully these difficulties will be overcome in further analysis of our truth-measurements with higher values and measurements carried out within the project by co-investigators from other institutes. Figure 6 and Table I show stations and measurements executed during May-September 1975. The brief analysis of the registrations also indicate the possibility to map larger effluents from rivers and industrial areas along the Baltic coastline as well as mapping and documentation of oil-discharges from ships (120 registered by the Swedish Coast Guard 1975).

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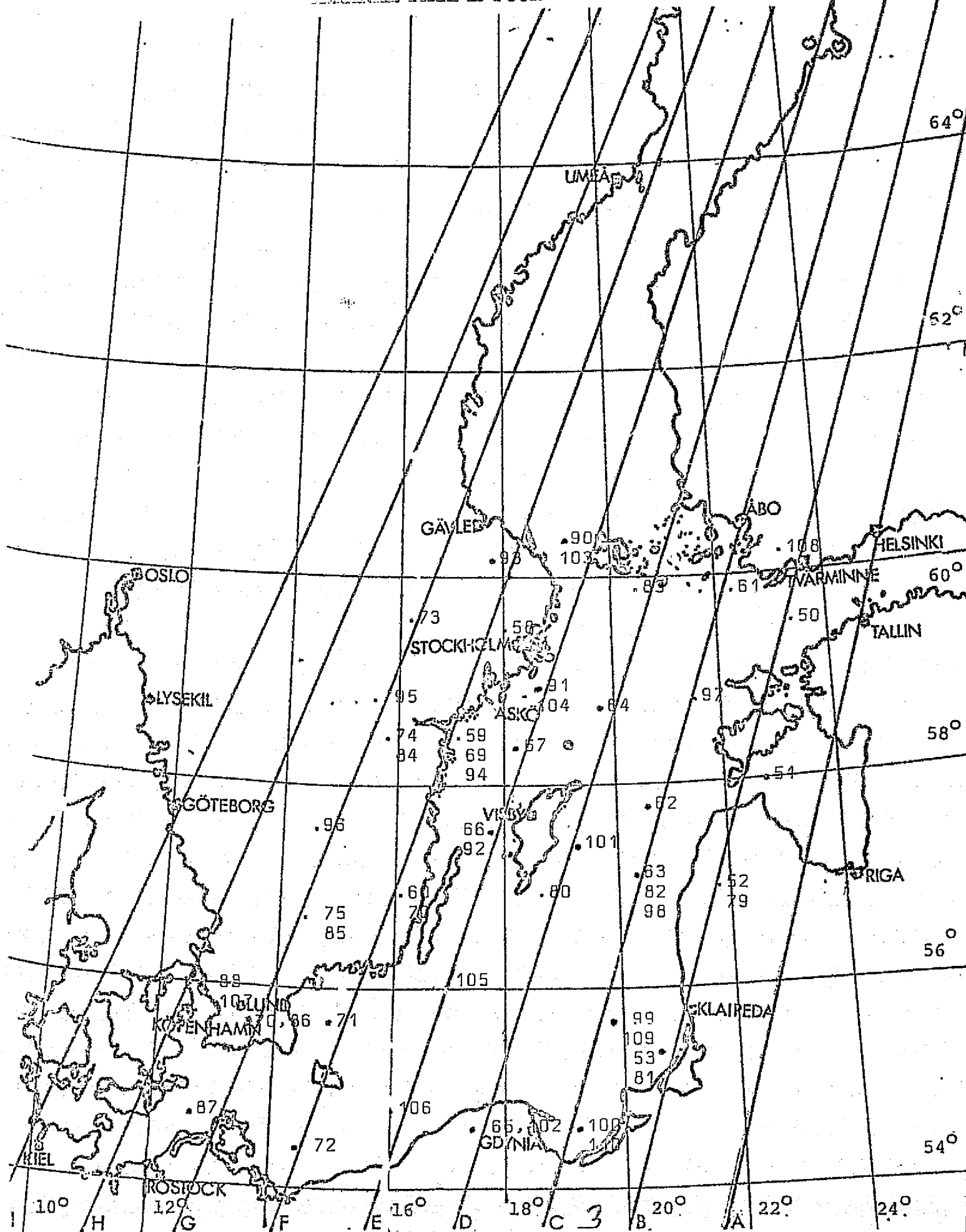
Bo G. Nyqvist  
Co-investigator



Figure 1. Landsat-2 registrations received per 760220

The picture center in connection to the scene number.

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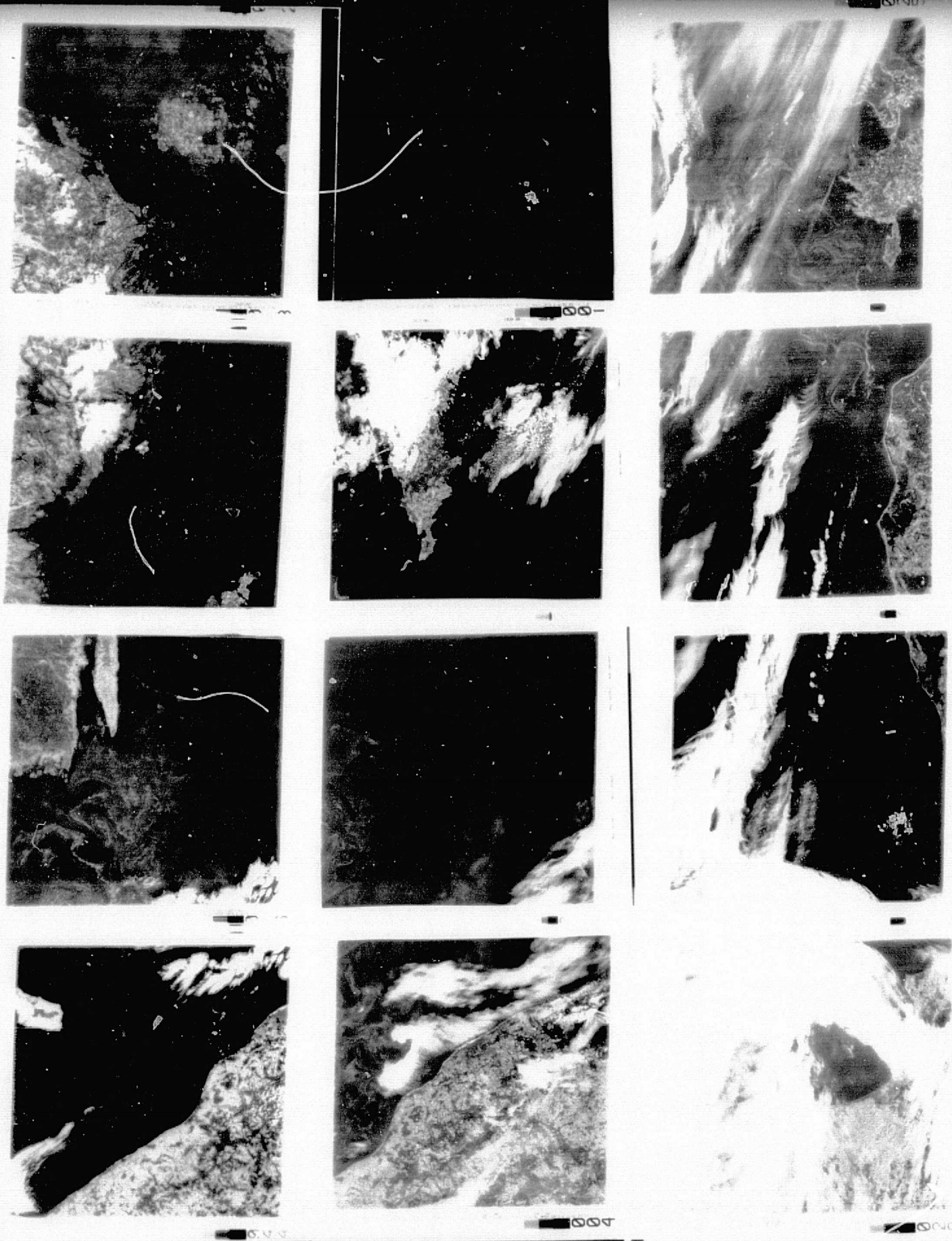


Figure 2. A mosaic of scenes covering the Baltic, registered 750804-750806, showing bluegreen algae in the surface water. USSR to the right and Sweden at the left of the figure.

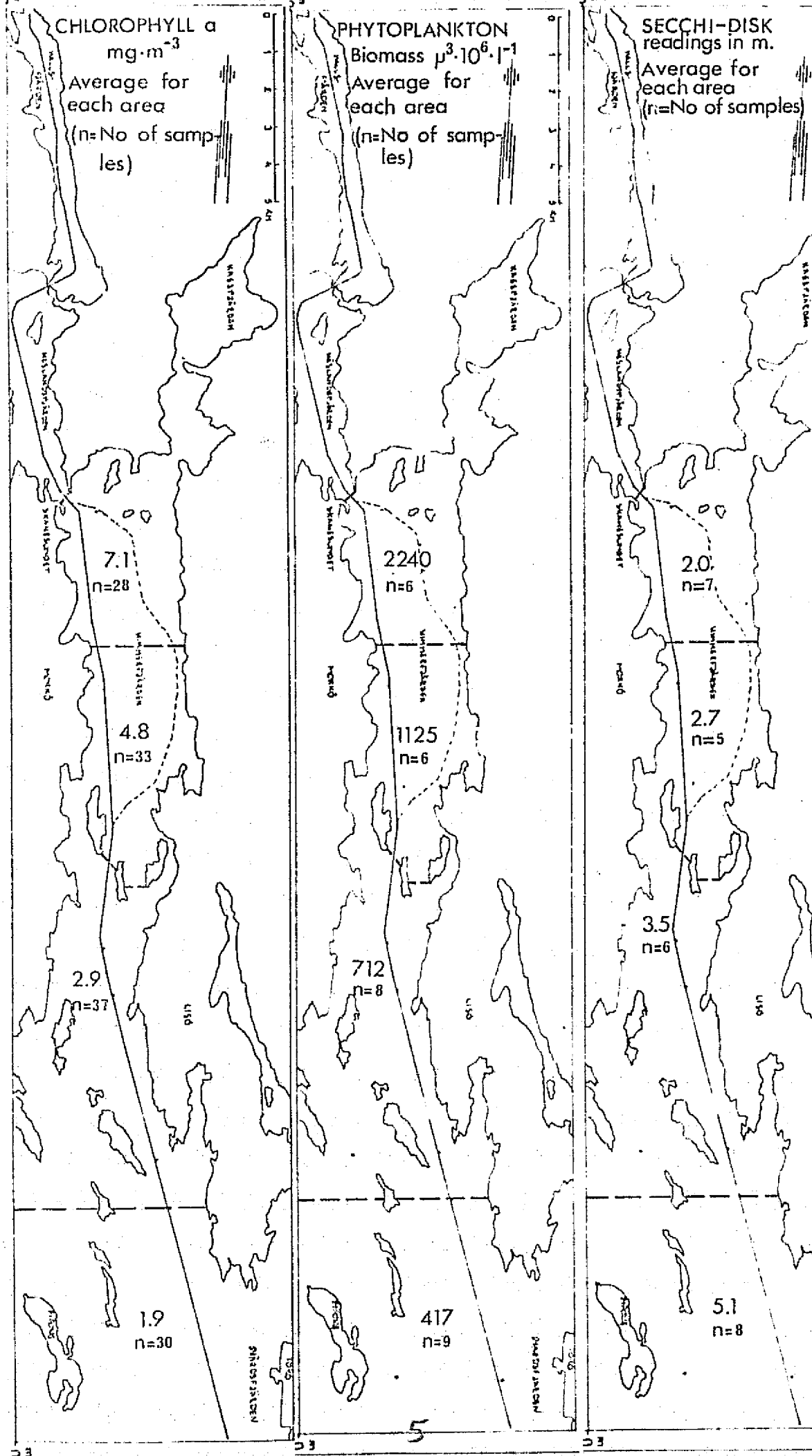
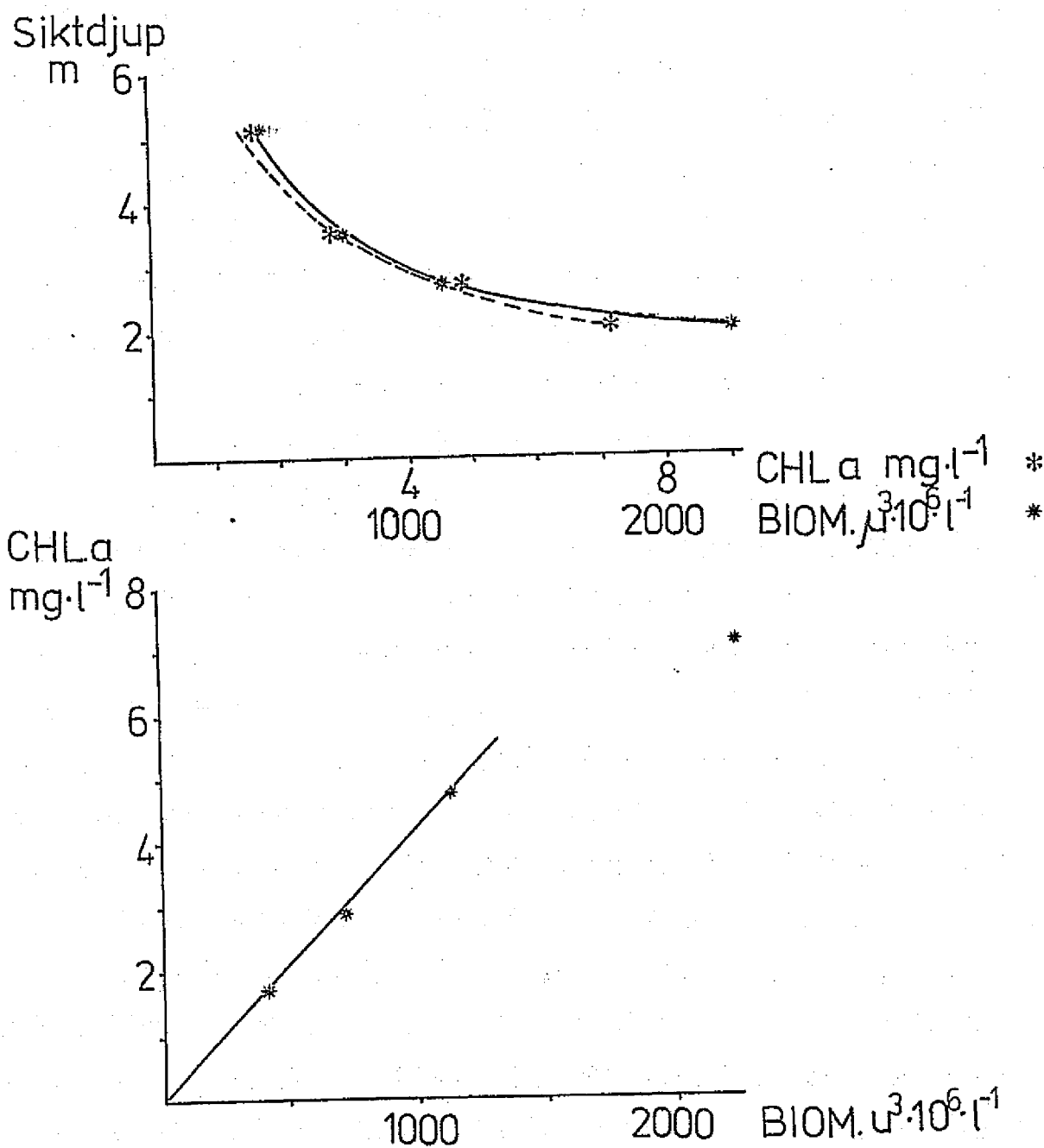
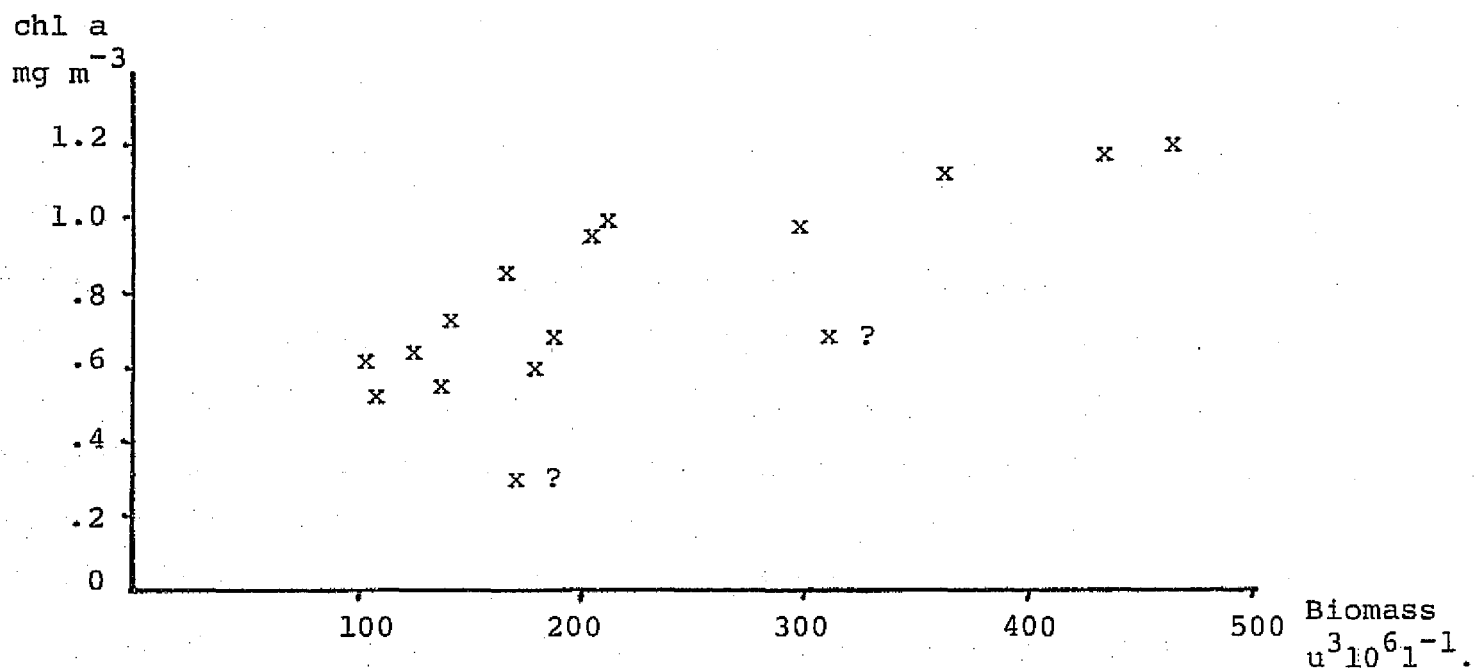


Figure 3. Truth measurements during the MSS- and Landsat-2 experiment in a bay of northern Baltic.

Figure 4. The meanvalue-relations of chlorophyll a and phytoplankton biomass and the relation to secchi-disc readings in the four areas in figure 3 during the MSS- and Landsat-2 experiment 1975.







Secchi-disc (m).

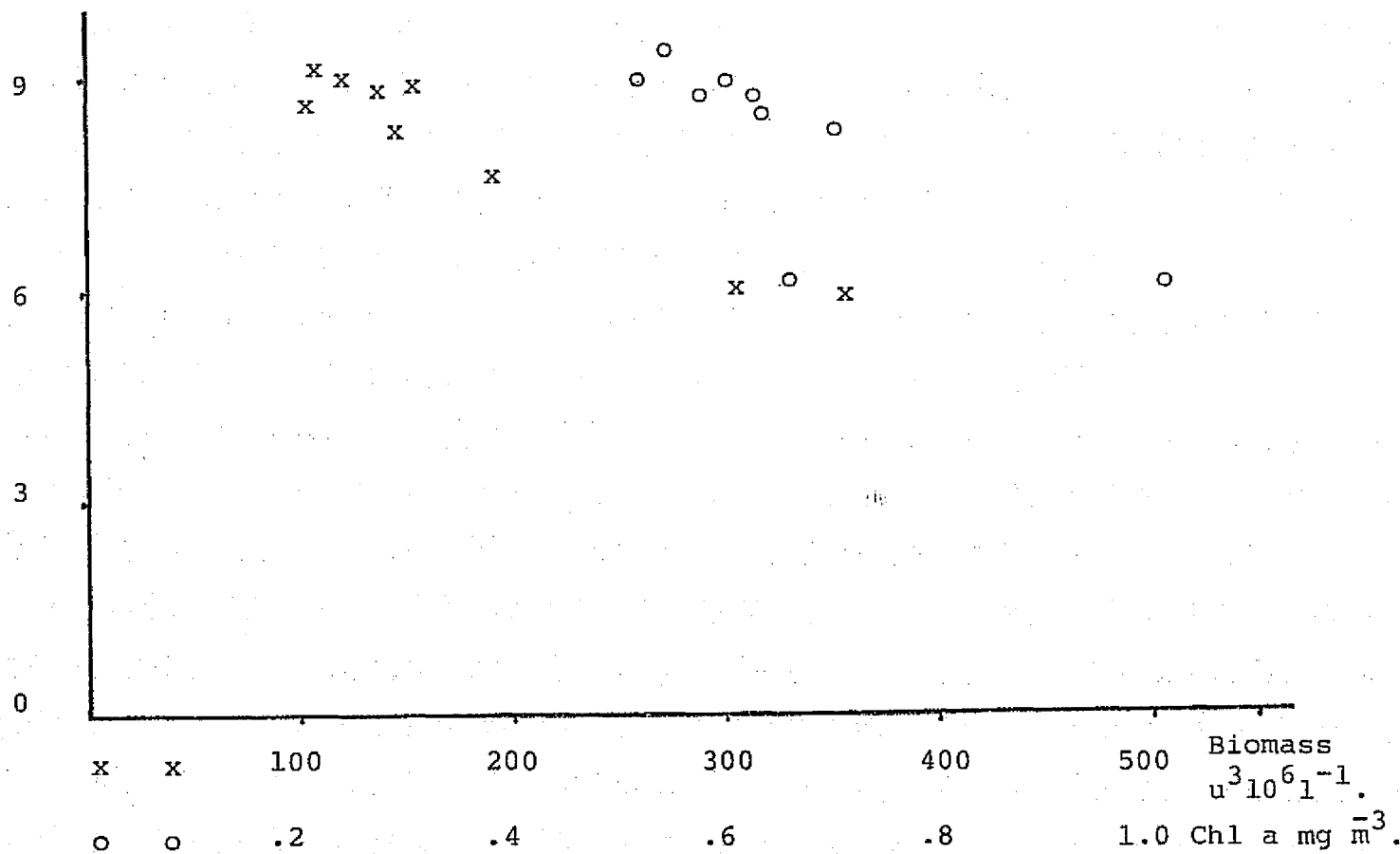


Figure 5. The relation chlorophyll a/phytoplankton biomass (above) and the relation to secchi-disc readings (below) during truth measurements 750805-750806.

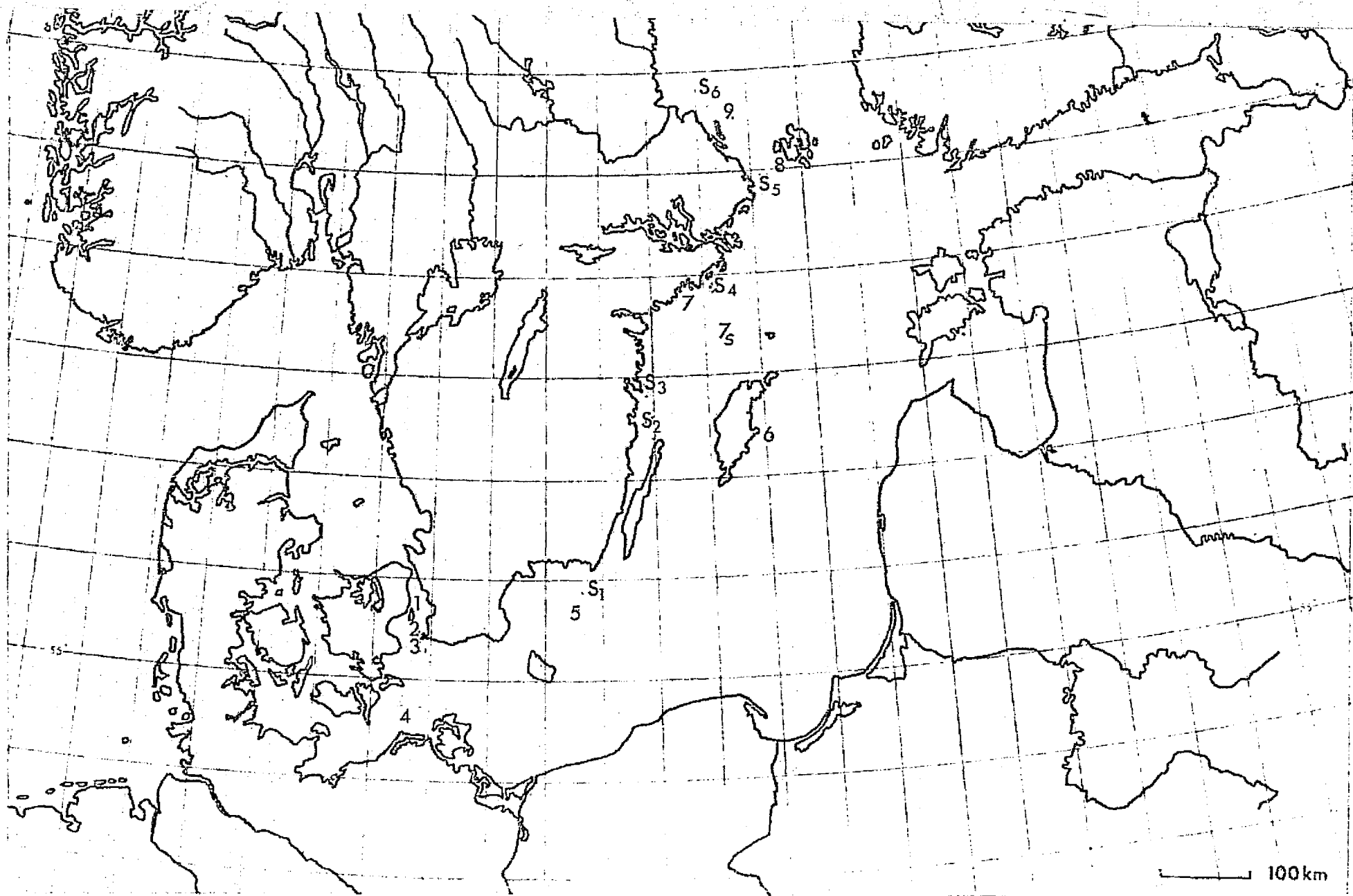


Figure 6. Truth measurement stations during the Landsat-2 experiment 1975 and the participating institutes.

Fishery Board of Sweden: Stn. 5, 6, 9, Askö laboratory: Stn. 7, 7<sub>s</sub>, Husö laboratory Finland: Stn 8, Institute of Marine Botany: Stn. 1, 2, 3, Institute für Meereskunde DDR: Stn 4, Swedish Meteorological and Hydrological Institut & Swedish Coast Guard: Stn S<sub>1</sub>-6.

# Station

Number of truth measuerments  
May-September 1975.

1	3	} $\Sigma$ 56 temp., S <sup>o</sup> /oo, chlorophylls, secchi-disc, carbon, nitrogen, phosphorus, primary production, phytoplankton, nutrients.
2	3	
3	3	
4	3	
5	8	
6	5	
7	18	
7 <sub>3</sub>	5	
8	2	
9	6	
P <sub>1</sub>	6	} $\Sigma$ 18 only phytoplankton, temp. and S <sup>o</sup> /oo.
P <sub>2</sub>	4	
P <sub>3</sub>	2	
P <sub>4</sub>	2	
P <sub>5</sub>	4	

TABLE I. Truth measurements executed during the Landsat-2  
project at respectively station(see figur 6).